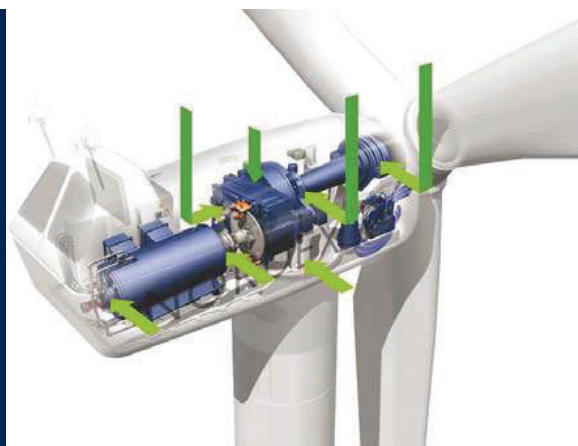


# OSBORNE ENGINEERING

Predictive Maintenance &  
Condition Monitoring Services



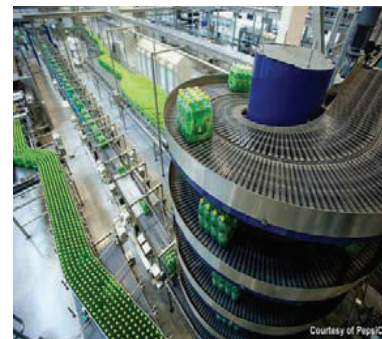
POWER PLANTS



PETROCHEMICAL PLANTS



OIL & GAS INDUSTRY



HEAVY PROCESS INDUSTRIES



UNITED ARAB EMIRATES - POLAND - UNITED KINGDOM - UNITED STATES OF AMERICA  
[WWW.OSBORNE-CMS.COM](http://WWW.OSBORNE-CMS.COM)

[WWW.OEL-GROUP.COM](http://WWW.OEL-GROUP.COM)



## ABOUT US

Osborne Engineering, LTD was founded in 1984, Newcastle, UK, as a white metal repair and manufacturing facility. Enjoying an immense success, OEL soon enhanced its gas turbine and fuel system portfolio with acquisition of Turbo Power Services (TPS).

This was followed by the establishment of Osborne Training (OTS) and Osborne Condition Monitoring Services to provide field services as well as technical training to oil, gas, petrochemical and power generation industries.

With facilities in UK, UAE, Poland and US, OEL now operates across five continents, working with End Users, Original Equipment Manufacturers and Service Companies.

With exceptional service quality and dedicated customer support, Osborne Engineering has obtained a reputation as an outstanding service provider.

## WHY US

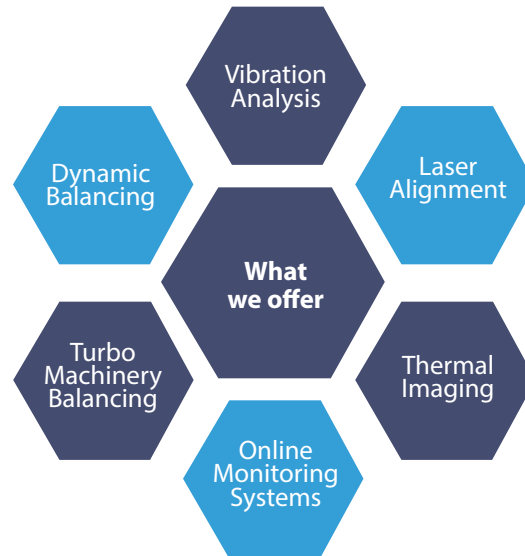
- Fast response time
- Service to the highest standards
- A complete solutions provider
- Well qualified engineers



# CONDITION MONITORING

Well-implemented reliability and condition monitoring plan can add measurable value to your business. Condition monitoring, combined with well-planned action can significantly improve performance of the rotating equipment.

- Improved plant availability
- Increased plant uptime
- Improved productivity
- Increased component life
- Increased plant efficiency at higher throughputs
- Improved energy efficiency
- Improved reliability



## VIBRATION ANALYSIS

Vibration analysis is one of the most successful techniques used for the condition monitoring of the rotating equipment. Used to detect early machine failures and allowing the machinery to be repaired or replaced before an expensive failure occurs.

- Misalignment
- Unbalance
- Soft foot
- Gear Faults
- Looseness
- Resonance
- Bearing Damages
- Electrical Problems
- Process Related Issues





## DYNAMIC BALANCING

Rotor balancing extends machinery life by eliminating the unbalance force that destroys mechanical components.

Osborne engineering has 2, 4 & 16 channel vibration analyzer with balancing option available for on-site balancing.

Osborne brings extensive balancing expertise to your plant for virtually every type, shape, and size of rotors, from Generators, Turbines, Industrial fans, Paper Mill rolls, Pumps, etc...

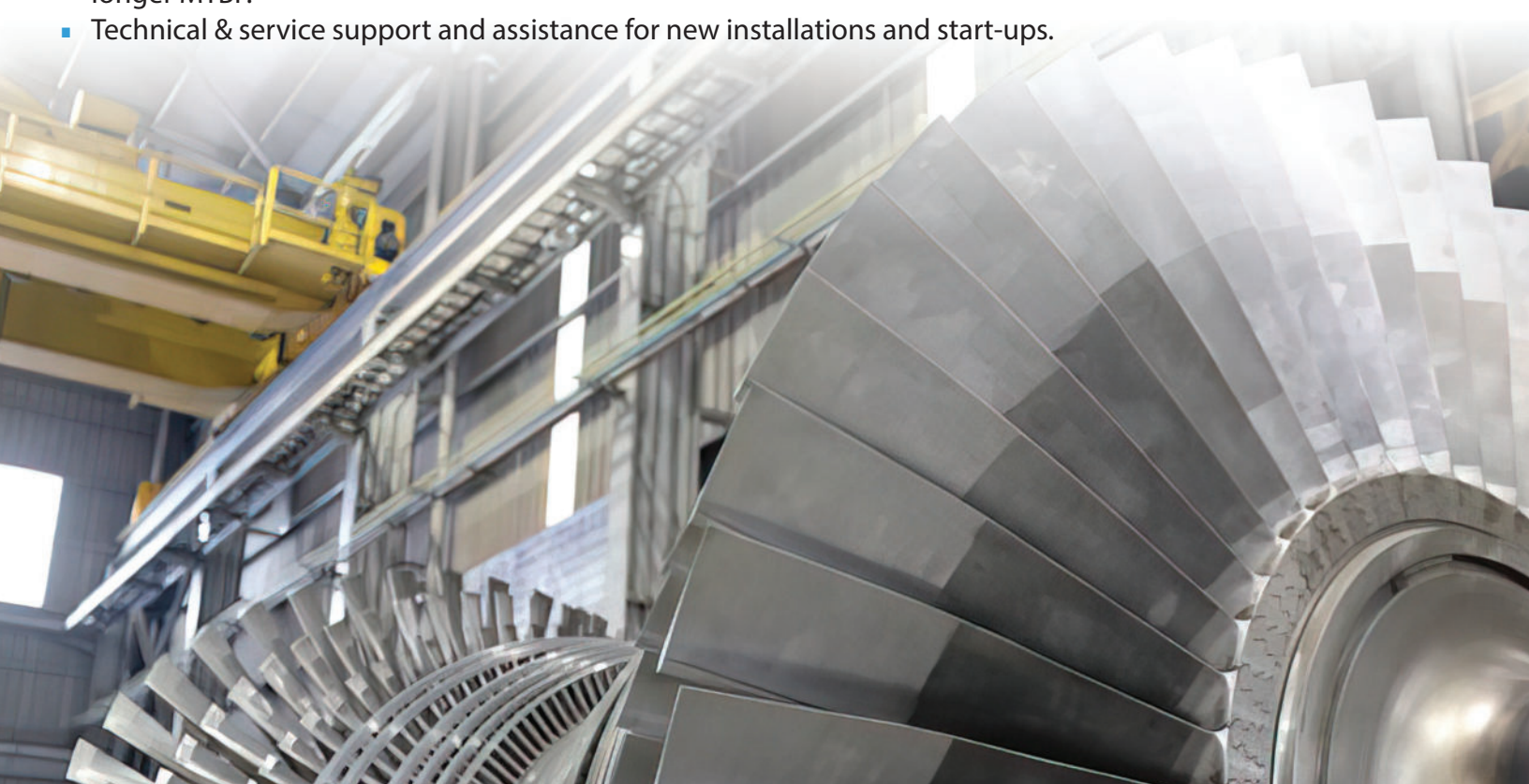
- Workshop balancing facility available in Jebel Ali
- On-site balancing by experienced service personnel
- Detailed reporting.



## TURBO MACHINERY & COMPRESSOR SERVICES

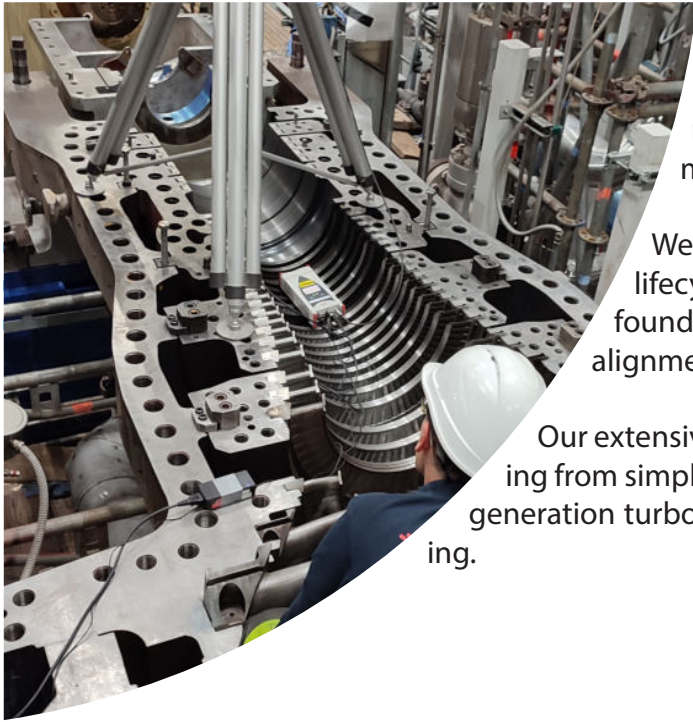
Osborne is specialized in Turbo-Machinery Vibration Analysis using Powerful 16 Channel & 24 channel Vibration Analyzer, capable of simultaneous Data collection in both Steady & Transient (Run up & Coast down) conditions with a highly skilled people who have rich experience in handling any turbomachinery.

- Turbine-Generator set on-site balancing
- Consulting services to analyze and diagnose problems and take corrective action.
- Technical assistance to carry routine maintenance to keep turbo machinery running more Efficiently with longer MTBF.
- Technical & service support and assistance for new installations and start-ups.





# MOBILE METROLOGY



Osborne Engineering provides professional on-site metrology services for most industrial applications. We use mobile laser metrology systems to perform precise geometrical measurements for large equipment, like alignment of multi-rotor heavy machinery.

We have expertise in alignment for turbomachinery at any lifecycle; starting from precise installation of foundations and bearing pedestals up to internal components alignment performed without rotors on-site.

Our extensive hands-on experience covers vast number of projects. Starting from simple coupling alignment till advanced alignment of large power generation turbotrains, asset relocations or long term displacement monitoring.

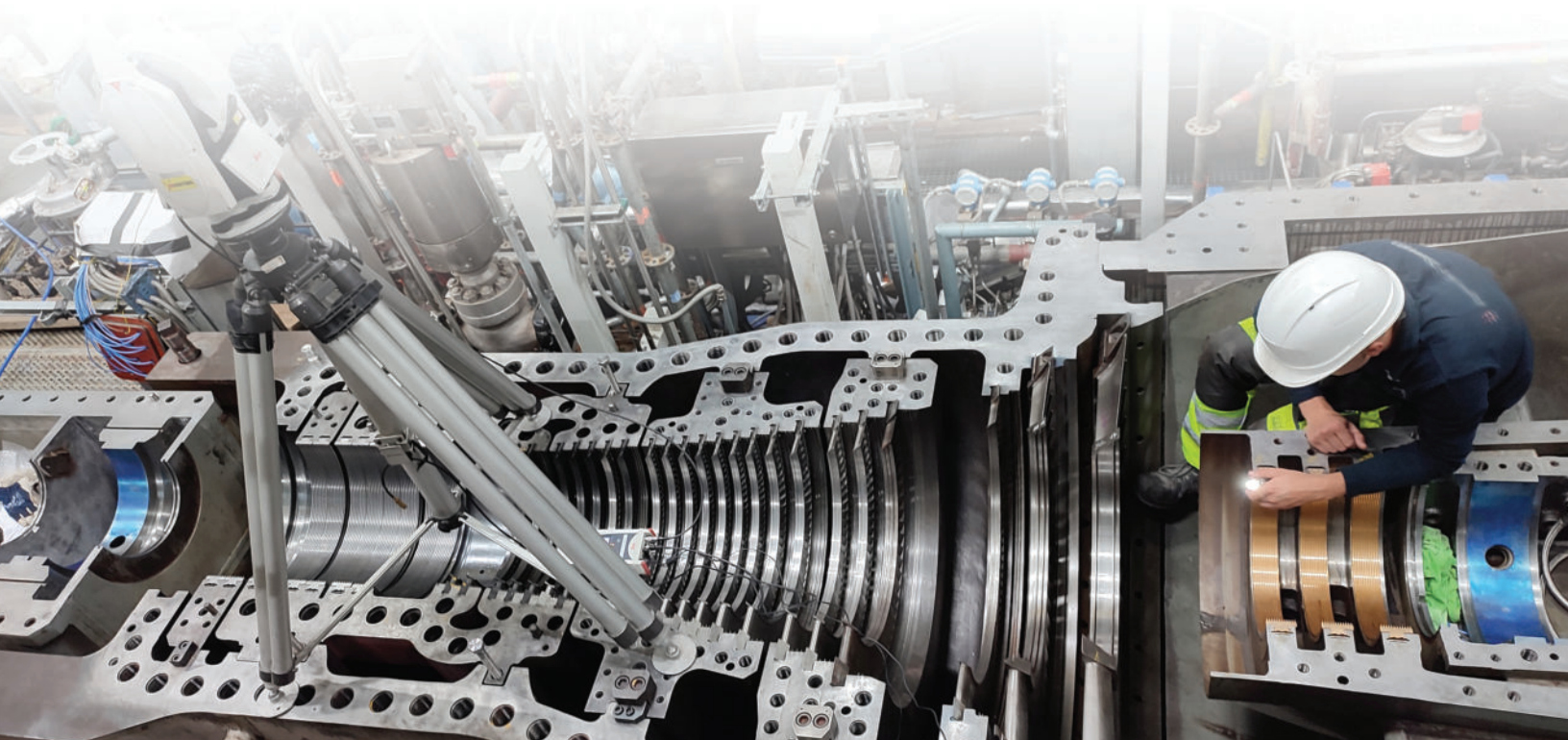
## STEAM & GAS TURBINE ALIGNMENT SERVICES

### Gas Turbines

- Casing alignment & geometry measurements.
- Flange to flange precise assembly measurements.
- Bearing housing alignment.
- Coupling alignment

### Steam Turbines

Hot-cold state elevation measurements.  
Catenary line measurements.  
Coupling alignment.  
Internal alignment.





## THERMAL IMAGING

By measuring the intensity of the infrared radiation emitted by the machinery, our experienced engineers can uncover valuable information about your plant operating condition.

Detecting anomalies that are usually invisible to the naked eye, thermal imaging allows corrective action to be taken before costly system failures occur. Some faults that can be detected include,

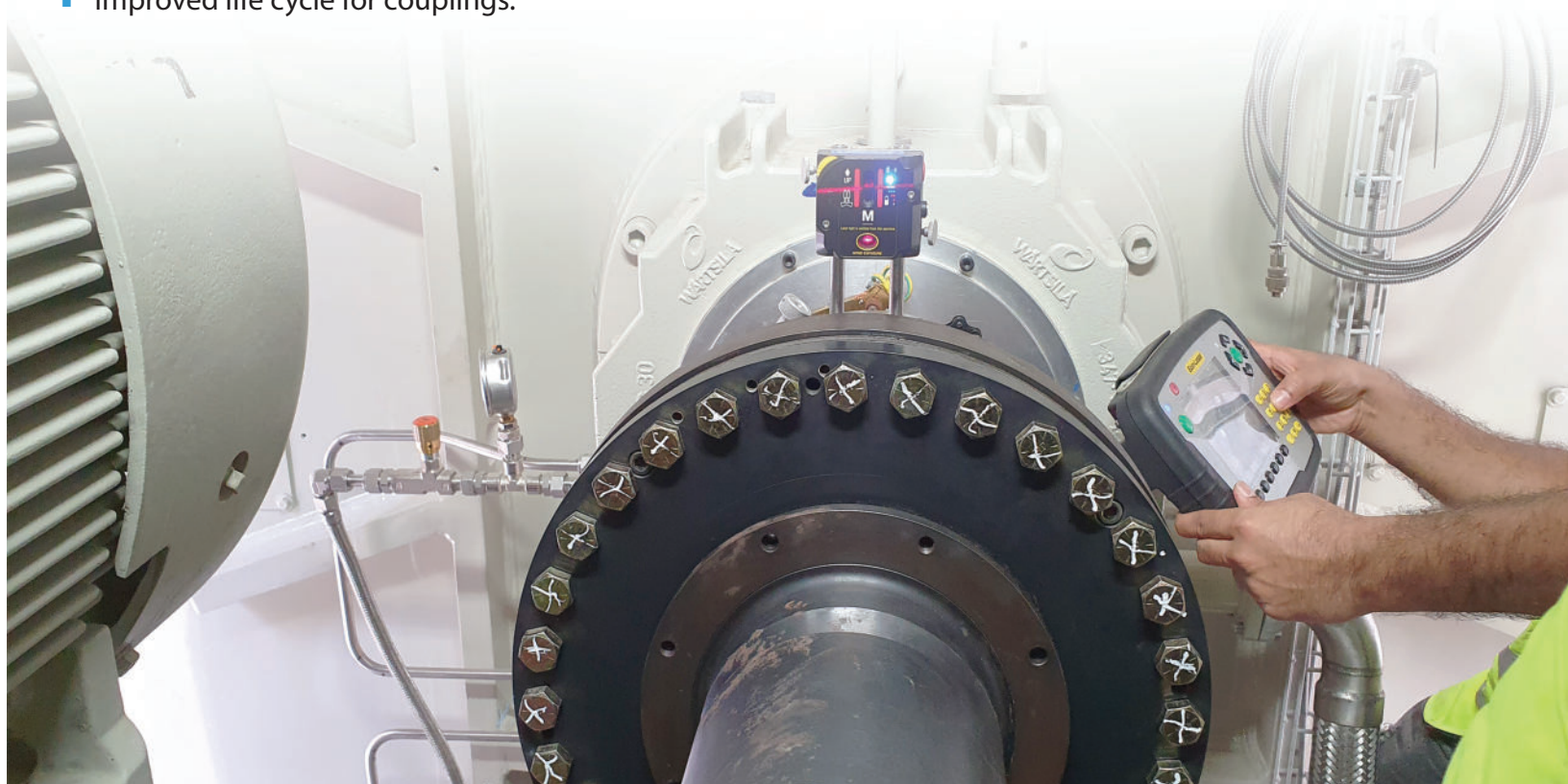
- Hot joints caused by faulty connections in electrical circuits.
- Insulation degradation heat losses.
- Electrical phase imbalance heat losses.
- Incorrect installation or poor lubrication of bearings.
- Misalignment of couplings
- Moisture infiltration in roofs.
- Blockages and dead shots in circulation system such as the cooling tubes of heat exchangers.



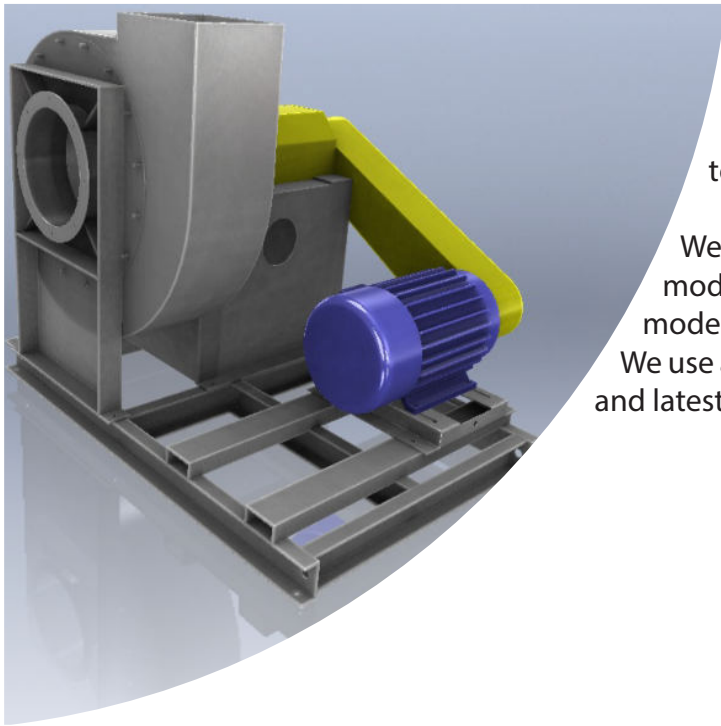
## LASER ALIGNMENT

Precision alignment has a huge impact on energy consumption and wear of mechanical components in a coupled machinery. Be it motor-pump, fan, gearbox or a generator-turbine set. A well-aligned machinery runs much smoother.

- Reduced vibration levels.
- Reduced downtimes and breakdowns.
- Improved electrical efficiency.
- Reduced bearing and seal consumption.
- Improved life cycle for couplings.



## MODAL & ODS TESTS



Operating Deflection Shape testing can help you to understand the motion of the machine or structure while it is in operation under normal conditions. We can acquire vibration amplitude and phase from around a structure to visualize the motion.

We can also assist you with modal testing using calibrated modal hammer and determine the natural frequencies and mode shapes

We use advanced multi-channel vibration analyzer, modal hammers, and latest ODS/Modal software for these tests.

## CALIBRATION SERVICES

Osborne Engineering has the expertise and instrumentation necessary to provide on-site calibration service. We guarantee the reliability of your sensors or instruments using the latest technologies for on-site or lab calibration. We can support you with

- Calibration of proximity probes.
- Calibration of accelerometers.
- Calibration of vibration meters / analyzers.
- Calibration of online monitoring systems

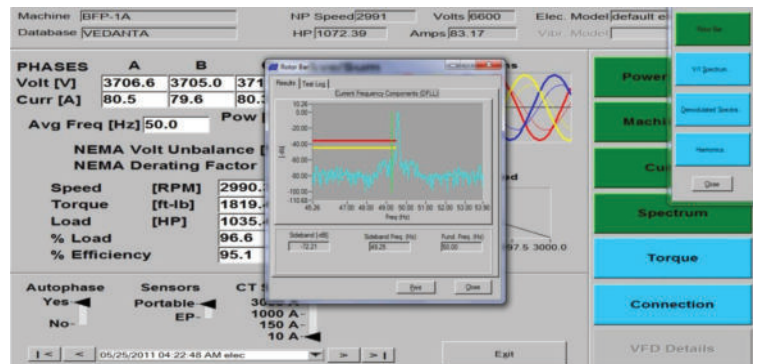




# MOTOR CURRENT SIGNATURE ANALYSIS

MCSA is simply the process by which motor current readings are recorded and analyzed in the frequency domain. It has been effective in locating electrical equipment faults. MCSA can be used to effectively diagnose.

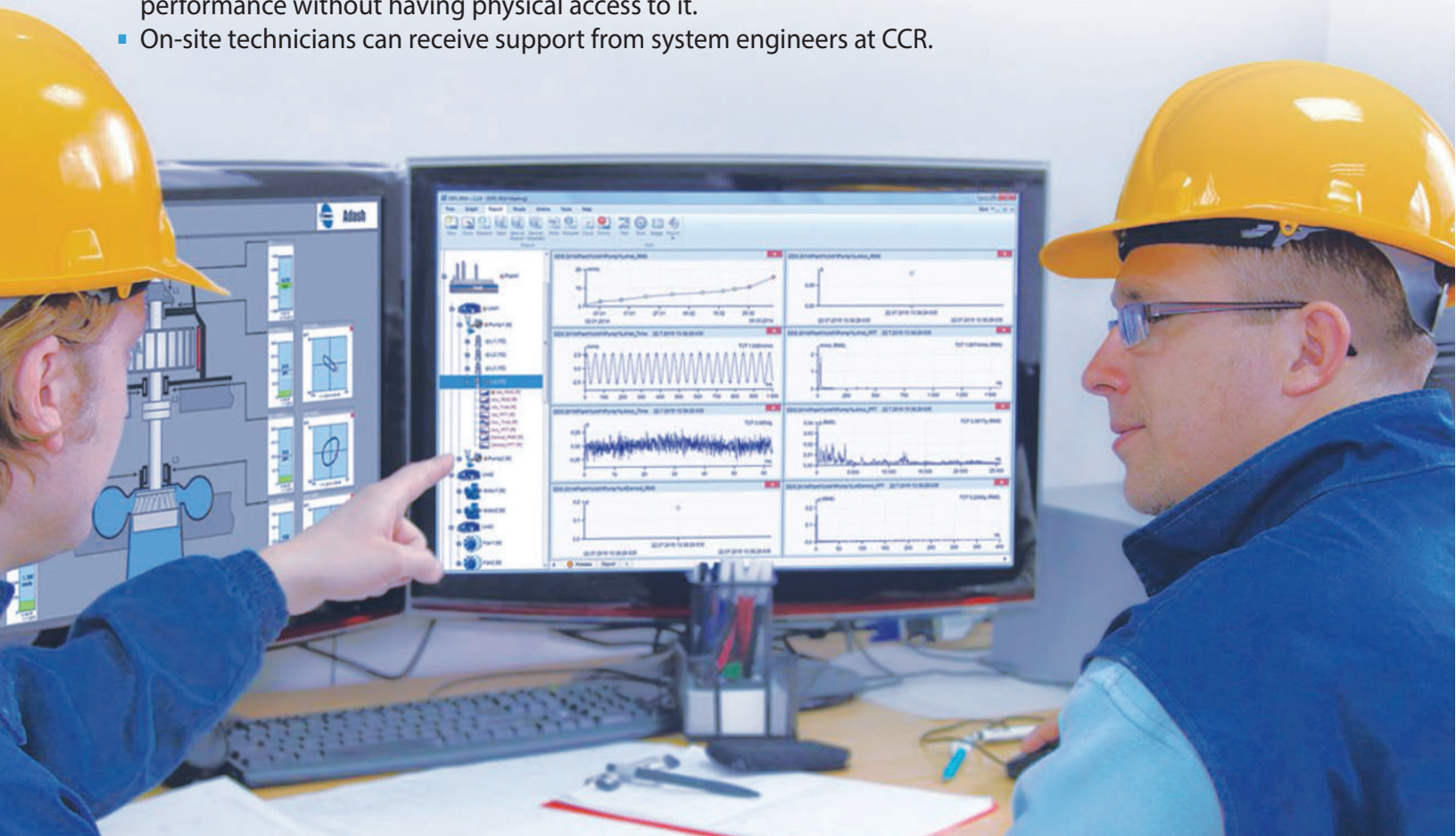
- Electrical motor overall condition
- Rotor or stator bar faults.
- Faults in load or phases.
- Earthing issues
- Electrical imbalance.



## ONLINE REMOTE MONITORING

Osborne Engineering has the capability and expertise to install, commission and remotely monitor assets through online monitoring systems. This makes it possible to analyze the condition, generate messages automatically and even predict hazardous conditions before severe damage occurs.

- The remote connection of condition sensors helps experts to evaluate the condition of the equipment and its performance without having physical access to it.
- On-site technicians can receive support from system engineers at CCR.





## TECHNICAL TRAINING

The main problem in industry faces now is the high-level management forcing them to seek fresher's or inexperienced people, but the machines are becoming more and more complex and technologies are more and more complicated. Technical training is a vital and immediate requirement for reliability centered industry. Osborne provides certified training programs on below list of technical courses:

- + Vibration analysis
- + In-situ dynamic balancing
- + Laser alignment
- + Advance reliability centered maintenance
- + Bearing failure analysis.

## AMC OPTIONS

**AMC Service Program:** Option of 24x7 AMCs where we employ our vibration instruments, software and experts in the field of condition-based maintenance to monitor, make the proper schedule, collect and analyze data, diagnose and advice the maintenance team for corrective action. We submit daily, weekly and monthly reports.

**Monthly Services:** Osborne engineers visit the site, conduct pre-survey meetings with maintenance team in order to collect machine technical data, data acquisition, and analysis for diagnosing the problem, and submit the report with recommended action soon after completing the visit, and conduct post survey meetings with maintenance team to review the result of recommended actions.

**On-call Services:** Osborne engineers are always available for emergency machine problems (Balancing, laser alignment, RCFA etc..)



# OSBORNE PRODUCTS

## VIBRIO -M



Vibrio Meter  
Vibrio Analyzer  
Stroboscope  
Temperature  
DDS Software  
FFT, Time Waveform  
ISO 20816 Standards

## VIBRIO -M EX



ATEX - EX Rated  
Vibrio Meter  
Vibrio Analyzer  
DDS Software  
FFT, Time Waveform  
ISO 20816 Standards  
Battery Powered

## LUBRI



Lubrication Assist  
Vibrio Meter  
DDS Software  
ISO 20816 Standards  
Optional Greasing Gun

## VA5 PRO



Vibrio Analyzer  
Channels : 4  
Multiplane Balancing  
Bode Plots  
DDS Software  
Bump Tests  
MCSA Module  
Thermography  
Ultrasound

## VA3 PRO



Vibrio Analyzer  
Channels : 3  
Balancing Modukes  
User Configurable  
DDS Software  
Ultrasound  
Stroboscope  
Low Weight

## VA3 PRO EX



ATEX-EX Rated  
Vibrio Analyzer  
Channels : 3  
Balancing Modukes  
User Configurable  
DDS Software  
Ultrasound  
Low Weight



# OSBORNE PRODUCTS

## SENSORS



Accelerometers  
4-20mA Sensors  
Sensor Cables  
Data Collector Cables  
Proximity Probes  
Mounting Hardware

## JUNCTION BOX



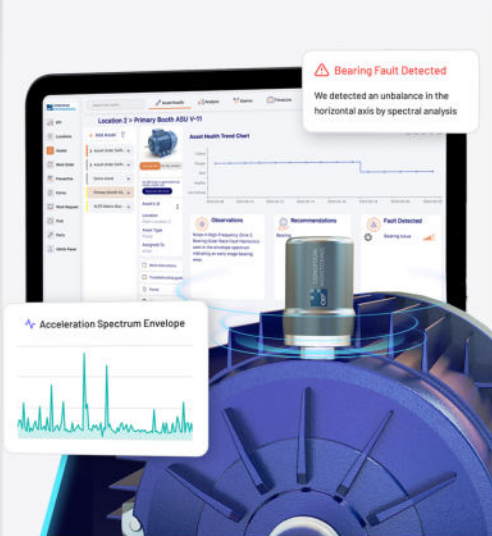
BNC Outputs  
Offline Data Collection  
PLC Integration  
Alarm Light  
4-20mA Output  
Relay Output

## ONLINE SYSTEM



Online Monitoring System  
Sensors: 4-16  
BNC Outputs  
Relay Outputs  
4-20mA Outputs  
Trending & Analysis  
Remote Monitoring

## IOT-WIRELESS SYSTEMS



Easy to Install  
Mobile Applications  
Easy to Use Dashboards  
Advanced Analysis Features  
Bearing Defect Frequencies  
Remote Analysis Support  
FFT Spectrum, Timewaveforms  
Advanced Alarms & Notifications  
Wireless Vibration & Temperature Monitoring

# OSBORNE PRODUCTS

## LUBRICATION



Trend bearing condition  
Create lubrication routes  
Trend bearing condition  
Displays dB levels  
Record all lubrication data

## ULTRASOUND



ATEX Rated  
Leak detection  
Lubrication assessment  
Steam trap testing  
DMS software

## ULTRASOUND



Record waveform  
Leak detection  
Lubrication assessment  
Steam trap testing  
Partial discharge detection

## 24X7 ULTRASOUND MONITORING



Customized alarm levels  
Permanently installed transducers  
Low- and high-level alarms can be triggered  
4Site available for corona, arcing, and tracking  
Monitor bearing health for slow speed application  
Sends recorded data and sound samples directly to DMS  
Inspectors can schedule condition sampling as required



# OSBORNE PRODUCTS

## SOUND METER



Class 1 & 2 Sound Meter  
3-20Hz Freq Range  
16dBA RMS - 140dBA RMS  
IEC 61672-1 Approved  
Advanced acoustic analysis

## DOSIMETER



ATEX Rated  
Class 2 Noise Dosimeter  
Worker Noise Exposure  
Bluetooth Connectivity  
ISO 9612, OSHA, MSHA  
and ACGIH standards

## NOISE STATION



Noise Monitoring Station  
PTB-approved Monitoring  
All-in-one solution  
Precise noise source  
Identification

## 24X7 NOISE & VIBRATION MONITORING STATION



4G Connectivity  
Building Vibration Monitoring  
Noise & Vibration Trending and Storage  
Simple triggers from PPV or LEQ values  
Compatible with DIN 4150-3 or BS 7385-2  
System generates SMS & Email Notifications,  
Environmental Noise & Vibration Monitoring  
Construction & Demolition Noise & Vibration Monitoring



## Discover a world of excellence

[www.osborne-cms.com](http://www.osborne-cms.com)

[www.oel-group.com](http://www.oel-group.com)

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